

REMARKS

Claims 1, 2, 6, 42 and 46 have been amended to further patentably distinguish the invention from the prior art. Claims 3-5, 7-41 and 42-45 remain cancelled. Such amendments to claims are only for the purpose of expediting the prosecution of this application and are not to be construed as an abandonment of any of the novel concepts disclosed therein.

The Office Action states

Claims 1, 2 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scofield (US 6853732 B2) in view of van der Werff (US 7343018 B2).

With respect to claim 1, Scofield discloses an audio system including a plurality of channels (fig.3 #54,56) intended to be radiated in a predetermined positional relationship to a listener, comprising: a listening area (fig.3 #64) comprising a plurality of listening spaces (fig.3 "spaces occupied by listeners #26"); a first directional local audio device (fig.3 #58) comprising a radiating element radiating sound waves that destructively interfere more in some directions than the sound waves destructively interfere in other directions, the directional audio device being positioned in a first of said listening spaces (fig.3), close to a head of the listener (fig.3 #26) for radiating first sound waves corresponding to a first of said channels (fig.3 #58, "L-channel"); and a second nonlocal audio device (fig.3 #52), positioned inside said listening area and outside said listening spaces, distant from said first of said listening spaces (col.4 ln.58-63), for radiating sound waves corresponding to said first of said channels (col.4 ln.21-25). It is implied that destructive interference resultant from two separate sound sources (#58 and 60) would not be equal at all points in space, therefore the sound waves would destructively interfere more in some directions when compared to others. Scofield does not disclose expressly wherein the first directional local audio device comprises at least two radiating elements for radiating sounds of a first channel.

van der Werff discloses a directional local audio device comprising at least two radiating elements (fig.5 #1) for directionally radiating sounds of a first channel (col.1 ln.5-14). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the directional array of van der Werff in place of the local audio device #58 of Scofield. The motivation for doing so would have been to increase the intensity of a sound beam directed towards a listeners head while reducing side lobe sound beams that lead to reflective sound noise within an enclosed listening area.

With respect to claim 2, Scofield discloses an audio system in accordance with claim 1, wherein said directional audio devices comprise a plurality of acoustic drivers (van der Werff: fig.5 #1), wherein said acoustic drivers are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second

predetermined location in space.

With respect to claim 42, Scofield discloses an audio system including a plurality of channels (fig.3 #54,56) intended to be radiated in a predetermined positional relationship to a listener, comprising: a listening area (fig.3 #64) comprising a plurality of listening spaces (fig.3 "spaces occupied by listeners #26"); a first local audio device (fig.3 #58) comprising a radiating element radiating sound waves that destructively interfere more in some directions than the sound waves destructively interfere in other directions, the directional audio device being positioned in a first of said listening spaces, close to a head of the listener (fig.3 #26) for radiating first sound waves corresponding to a first of said channels (fig.3 #58, "L-channel"); and a second nonlocal audio device (fig.3 #52), positioned inside said listening area and outside said first of said listening spaces, distant from said first of said listening spaces (col.4 In.58-63), for radiating sound waves corresponding to said first of said channels (col.4 In.21-25). It is implied that destructive interference resultant from two separate sound sources would not be equal at all points in space, therefore the sound waves would destructively interfere more in some directions when compared to others. Scofield does not disclose expressly wherein the first directional local audio device comprises at least two radiating elements for radiating sounds of a first channel.

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Pp. 2-5

This ground of rejection is respectfully traversed. We rely on the authorities set forth on pages 6 and 7 of the Response filed 10 September 2009 and the authorities and claim construction set forth on pages 5-7 of the Response filed 12 February 2010.

The primary reference states in paragraph [40], "The localized speakers 58 and 60 are supported on the heads of the listeners 26 such that they are maintained at a predetermined and substantially fixed position relative to the head." In paragraph [41], the reference continues, "The combination of localized speakers 58 and 60 and visual cues on the screen 65 provide an additional aspect to the listener's ability to localize sound. In general, the listener cannot localize sound very well when it is directly in front of or in back of the listener's head. Some type of head movement or visual cue would normally facilitate localization of sound. Since the

localized speakers 58 and 60 are fixed to the listener's head, visual cues on the screen provide the listeners 26 with additional information to assist in localizing the sound."

Thus the primary reference discloses that with speakers affixed to the head, head motion is no longer available as a cue to help with localization and differentiating between front and back sources. The primary reference discloses using visual cues to overcome this deficiency. This approach is inadequate for surround sound that includes components coming from behind the listener because all the visual cues are in front of the listener.

The invention disclosed and claimed in this application teaches away from the primary approach in paragraph 56 of the published application:

[0056] An audio system according to FIGS. 3A-3C is advantageous over sound radiating systems employing earphones and "head-mounted" devices. A system according to the invention avoids the "in the head" phenomenon typically associated with earphones. The sound source does not move with the head and the result of head motion can be made more realistic than with head-mounted devices without the need for signal processing or head motion tracking devices. For a commercial establishment, the sound radiating devices are far less susceptible to theft, damage, vandalism, or normal wear-and-tear. The hygiene concerns with headsets with multiple users is not a problem. An audio system according to FIGS. 3A-3C is advantageous over sound radiating systems using nondirectional acoustic devices because the acoustic device does not have to be positioned close to the head, and because a single device can radiate sound to two adjacent listening spaces.

As amended, the claims call for the directional local audio device at a fixed location in the listening space defined in paragraph [0035] of the published application as follows:

[0035] "Listening space," as used herein means a portion of space typically occupied by a single listener. Examples of listening spaces include a seat in a movie theater, an easy chair, reclining chair, or sofa seating position in a domestic entertainment room, a seating position in a vehicle passenger compartment and other positions occupied by a listener. "Listening area," as used herein means a collection of listening spaces that are acoustically contiguous, that is, not separated by an acoustical barrier. Examples of listening areas are automobile passenger compartments, domestic rooms containing home entertainment systems, motion picture theaters, auditoria, and other volumes with contiguous listening spaces. A listening space may be coincident with a listening area.

Since the claims as amended include a limitation absent from both references, it is impossible to combine the references to meet the limitations of the rejected claims.

"Moreover, we observe that even if these references were combined in the manner proposed by the examiner, that which is set forth in appellant's claims . . . would not result." Ex parte Bogar, slip op. p.7 (BPA&I Appeal No. 87-2462, October 27, 1989). "Even if we were to agree with the examiner that it would have been obvious to combine the reference teachings in the manner proposed, the resulting package still would not comprise zipper closure material that terminates short of the end of the one edge of the product containing area, as now claimed." Ex parte Schwarz, slip op. p.5 (BPA&I Appeal No. 92-2629 October 28, 1992). "Although we find nothing before us indicating why it would be desired to combine the references in the manner urged by the examiner, it is clear to us that such a modification by itself would not result in that which is set forth in the claims." Ex Parte Kusko, 215 U.S.P.Q. 972, 974 (BPA&I 1981). That it is impossible to combine references to meet the limitations of the rejected claims, that is reason enough for withdrawing the rejection of them.

The Office Action states:

Claims 6 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scofield (US 6,853,732 B2) in view of van der Werff (US 7343018 B2) and in view of Fabry (US 7,164,773 B2).

With respect to claim 6, Scofield discloses an audio system in accordance with claim 1, however does not disclose expressly wherein said listening area comprises a vehicle passenger compartment and said listening locations comprise seating locations within said vehicle passenger compartment.

Fabry discloses an audio system to be mounted within an automobile (see figure).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the audio system of Scofield in the automobile Fabry. The motivation for doing so would have been to provide a virtual sound system within the cabin of a vehicle so as to provide a realistic reproduced sound to a passenger.

With respect to claim 46, Scofield discloses an audio system in accordance with claim 42, however does not disclose expressly wherein said listening area comprises a vehicle passenger compartment and said listening locations comprise seating locations within said vehicle passenger compartment.

Fabry discloses an audio system to be mounted within an automobile (see figure).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the audio system of Scofield in the automobile Fabry. The motivation for doing so would have been to provide a virtual sound system within the cabin of a vehicle so as to provide a realistic reproduced sound to a passenger.

Pp. 5-6

This ground of rejection is respectfully traversed. Claims 6 and 46 are dependent on and include all the limitations of amended claims 1 and 42, and the reasons set forth above distinguishing claim 1 over the primary and secondary references is submitted to support the patentability of claims 6 and 46 so that further discussion of the tertiary reference is submitted to be unnecessary.

In view of the foregoing amendments, remarks, authorities and the inability of the prior art, alone or in combination, to anticipate, suggest or make obvious the subject matter as a whole of the invention disclosed and claimed in this application, all the claims are submitted to be in a condition for allowance, and notice thereof is respectfully requested. If the Examiner believes the application is not in a condition for allowance, he is respectfully requested to telephone the undersigned attorney at 617-521-7014 to discuss what additional steps he believes are necessary to place the application in a condition for allowance.

The Petition for Extension of Time fee in the total amount of \$490 is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,
FISH & RICHARDSON P.C.

17 August 2010
Date: _____

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